Evaluation of Perception of Medical and Paramedical Students towards Rapid Antigen Testing Program for COVID-19 in the City of Ahmedabad, Gujarat

Harsh Patel[1], Richa Patel[1], Shikha Sood[2], Deshna Lad[1], Supriya Malhotra[3], Pratik Patel[4]

[1]Resident, [2]Associate Professor, [3]Professor and Head, Department of Pharmacology, Smt. NHL Municipal Medical College, Ahmedabad, [4] Dean, Smt. NHL Municipal Medical College, Ahmedabad

Correspondence : : Dr. Supriya D.Malhotra, Email: supriyadmalhotra@gmail.com

Abstract

Introduction: WHO declared COVID-19 a pandemic on 11thMarch,2020. It was recommended to use standard Q COVID-19 Ag detection test as a point of care diagnostic assay for testing in the containment zones as well as hospitals in combination with the RT-PCR test.Medical students had been involved to carry out the Rapid Antigen Testing (R.A.T) Program. **Objective:** To evaluate perception of medical and paramedical students towards rapid antigen testing program (R.A.T.). **Method:** This was a cross sectional study conducted among Medical/Paramedical students of Ahmedabad, Gujarat participating in R.A.T. This program involved testing of people by standard Q COVID-19 Ag detection test. Patients who tested positive were isolated and counselled for further management. Feedback responses from the students were elicited regarding program effectiveness, utility and students' satisfaction. **Results:** A total of 513 responses were recorded. 72.8% of the students perceived their communication skills to improve with patients. It helped 62.9% students to allay fear and apprehension regarding COVID. About 77.8% of the students were extremely satisfied with the transport facility provided by the authorities. About 53% students were extremely satisfied with personal protective equipment. 36.6% students were extremely satisfied with remuneration. R.A.T. program invited intermediate rating with 34.8% students rating it as 7 or 8 on a scale of 0-10. **Conclusion:** Students reacted positively for the program and reported improvement in their communication skills. Most of the students were satisfied working at the community level during this pandemic and this program provided them unique chance to work at grassroots level. Undergraduate students for the first time were given individual responsibility as a health care worker in society. Hence, eliciting their perception and feedback was useful for all stakeholders.

Keywords: COVID 19, Rapid Antigen Test, Students' perception

Introduction:

WHO has declared COVID-19 outbreak as a "Public Health Emergency Of International Concern'' (PHEIC) on 30th January,2020. On 11thMarch,2020, WHO declared COVID-19 asa pandemic.[1] The causative virus (SARS-COV-2) has a zoonotic source related to bat origin SARS like coronavirus. This disease is highly transmissible through droplet infection. The persons infected by the novel coronavirus are the main source of infection. Direct person to person transmission occurs through close contact.[1]

Quick Response Code	Access this article online	How to cite this article :
	Website : www.healthlinejournal.org	Patel H, Patel R, Sood S, Lad D, Malhotra S, Patel P. Evaluation of Perception of Medical and Paramedical Students Towards Rapid Antigen Testing Program for COVID 19 in the City of Ahmedabad, Gujarat. Healthline. 2021; 12(3):84-89.
	DOI : 10.51957/Healthline_239_2021	

The dictum followed by government was: Test-Trace-Isolate. There are two methods of testing: Rapid antigen test and RT-PCR test.[2]To combat the virus, authorities decided for quicker onsite testing by rapid antigen kit in all areas. The Q Covid -19 Ag kit has been developed by Sd Biosensor with a manufacturing unit at Manesar in Gurugram.[3] On validation, the test has been found to have a very high specificity with moderate sensitivity.

It is now recommended to use standard Q COVID-19 Ag detection test as a point of care diagnostic assay for testing in the containment zones as well as hospitals in combination with the RT-PCR test.[1] Medical and paramedical (Dental, Nursing and Physiotherapy) students had been involved to conduct and carry out the Rapid Antigen Testing (R.A.T) Program. To fulfil the requirement of faster screening, authorities set up kiosks where rapid antigen tests were performed.[4] Municipal Corporation has involved medical students by forming teams and sentthem at places in the city to perform the rapid antigen testing for faster detection and timely isolation. This test has been performed free of cost for general population. Among all COVID diagnosed patients 95% patients don't need hospitalization and can be treated at home.Population tested by R.A.T. includes thoseshowing symptoms of COVID-19, High risk contacts of confirmed cases and asymptomatic patients (high risk groups).Students also visited the home isolated patients for their regular follow up.

This study is an earnest attempt to evaluate their perception regarding the effectiveness of R.A.T. Program.

Method:

A cross sectional study was conducted after Institutional Review Board approval in November,2020. This study was carried out under the program initiative of the Municipal Corporation. Undergraduate students of Medicine, Dentistry and Nursing were allotted the duty to conduct the Rapid Antigen Testing, which is a screening test and have come in contact with all sectors of community. This program also involved taking the nasopharyngeal swab of people presenting to the COVID 19 kiosks and testing for the Covid antigen by the ICMR COVID 19 antigen testing kit. Sampling frame is Medical and paramedical students who participated in R.A.T. program. Pertaining to uniqueness of this study we could not get base for sample size calculation. Sampling was done by non-probability sampling. Students who participated in R.A.T. program during October 2020 – January 2021 and gave consent for participation in study were enrolled in this study. Feedback responses were elicited regarding program effectiveness, utility and student's satisfaction via semi structured and predesigned Google forms. Google form questionnaire was created comprising 20 questions to record responses regarding students' perception. Study instrument was semi structured, self-designed questionnaire. This was descriptive study and we used Likert scale in order to scale the responses. Responses of students were recorded and those were analysed at the end of the study using Microsoft excel and statistical package forsocial sciences (SPSS) software version 25. Data were analysed using Frequency and percentage.

Results:

Questionnaire was sent to around 1000 students via email and at the end of data collection phase, total of 513 responses were fully completed while 250 were closed with incomplete information- which were not used during data analysis. Hence, total of 513 responses were analysed. During the R.A.T. program, 48% students had a good experience as a health care provider and 20.7 % had a bad experience. There was a mixed response by the patients and community towards R.A.T. program. Around 22.8% students had a good response and 34% had a bad response from community, while 43.2% students had neither bad nor good response. On a daily basis, percentage of students performing at least 0-30, 31-60, 61-90, 91-120 and more than 120were about 15.6, 45.9, 25.2, 8.9 and 4.4,

respectively. In case the test results were positive, students felt that about 68.1% of the patients cooperated for further treatment and 31.9% were hesitant to follow guidelines and further treatment. Among all the people who come for testing, 62.7% of the students reported that only 0-25% of people were symptomatic, 28% students reported that 26-50% of people were symptomatic, 8.3% students reported that 51-75% people were symptomatic while 1% students reported that 76-100% people were symptomatic who come for testing at their designated center. Likewise,19.6% students reported that 0-25 % of people were asymptomatic, 21.5% students reported that 26-50% of people were asymptomatic, 41.3% students reported that 51-75% of people were asymptomatic and 17.6% students reported that 76-100% people were asymptomatic who come for testing at their designated center.

Figure 1 depicts student satisfaction with R.A.T. program. On evaluating satisfaction among students, satisfaction was maximum (77.8%) for transport facility provided to them by authorities followed by satisfaction with personal protective equipment (53%) and for the training provided to them prior to the program (47.8%). Satisfaction was least for time management of the program (46.8%). While, for satisfaction with remuneration provided to them, we got mixed response.

Figure 2 depicts student satisfaction regarding clinical and communication skills gained through this program. For all the parameters depicted in the figure, students were very satisfied. Highest satisfaction was for improvement in their communication skills with patient (72.8%) followed by satisfaction for helpfulness of this program in eliminating apprehension and fear (62.9%), increased knowledge regarding COVID (62.4%) and learning clinical skills as a student (47.3%).

For 36.4% students the environment was conducive to motivate their work at the center. For 37.3 % students the environment was not conducive.While serving the community amidst the pandemic, 82.8% students felt privileged to be serving the community in this pandemic. while 17.2% students didnot feel so. Around70.8% students would volunteer for screening of rapid antigen testing themselves, whereas29.2%students were not ready to volunteer for screening of rapid antigen testing. R.A.T. program invited intermediate rating from students on a scale of 1-10, where maximum rating reported were 8 (17.6%) and 7 (17.2%). (Figure 3)

Figure 1: Student satisfaction regarding R.A.T. program (n=513)

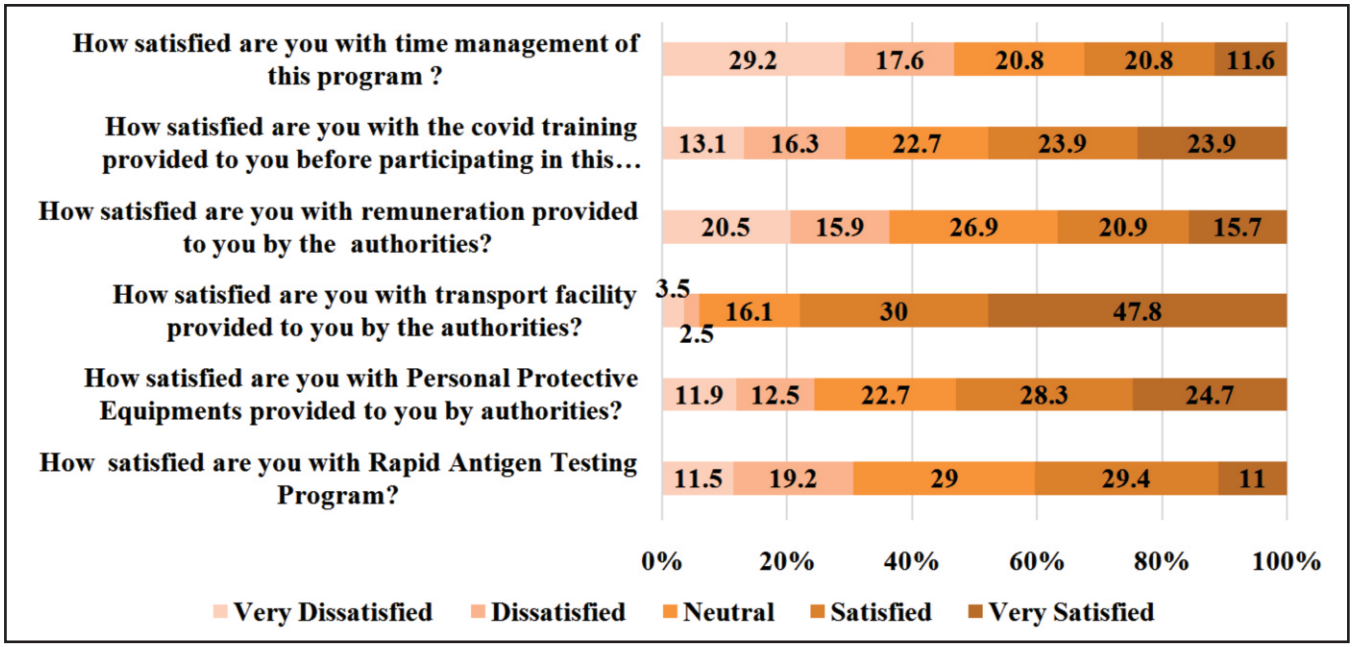


Figure 2: Student satisfaction regarding clinical and communication skills (n=513)

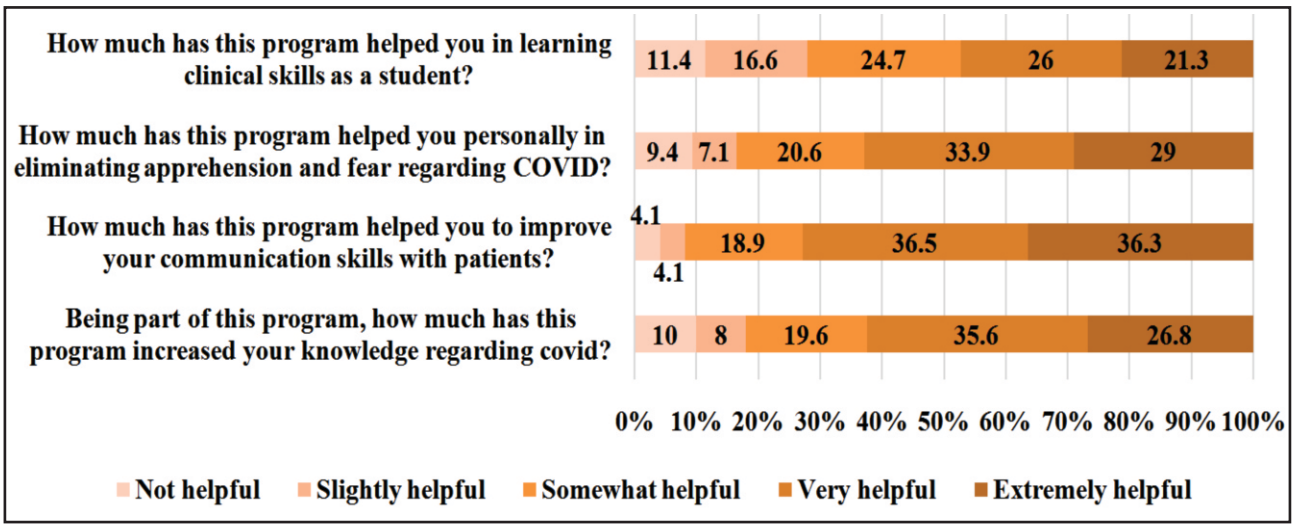
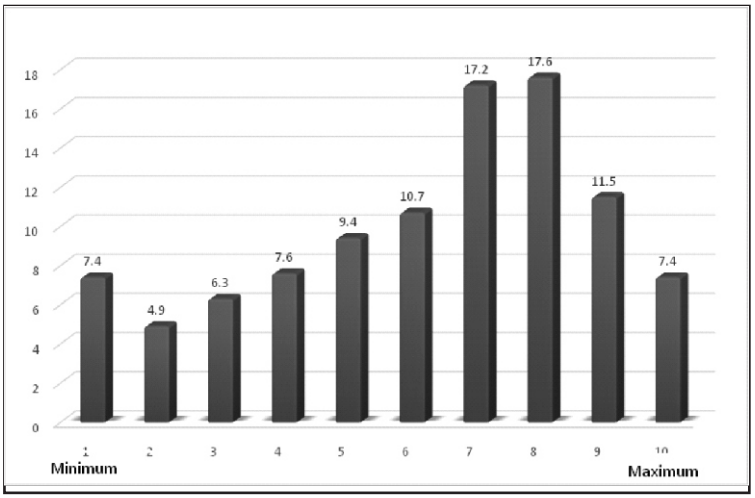


Figure 3: Overall rating of the program by the study participants



Discussion:

During COVID pandemic, allowing medical students to serve in clinical roles may benefit patients overall. There is precedent for this kind of involvement. During the Spanish flu outbreak of 1918, medical students at the University of Pennsylvania cared for patients in the capacity of physicians.[5] In the 1952 polio epidemic in Denmark, groups of medical students were tasked with manually ventilating patients.[6] In the current pandemic, medical schools in the United States, Italy, and the United Kingdom are graduating medical students early on the condition that they serve as frontline clinicians.[7-8]

The American Association of Medical Colleges (AAMC) has instructed medical schools to suspend student clerkships and has recommended that "unless there is a critical health care workforce need locally, we strongly suggest that medical students not be involved in any direct patient care activities".[9-10] But, Studies suggest that Medical students could play a crucial role in the SARS-CoV-2 healthcare response and these types of programs improve knowledge, skills and attitudes which are imperative for medical practice in a pandemic.[11,12]

This program has helped the students in increasing knowledge regarding COVID.During the regular posting of the terms, students would not have

got such a chance. Communication skills of students with patients have improved much due to this program as reported by them. Students gained experience regarding how to react to patients, fear and apprehensions regarding the disease and appropriate counselling which is needed thereafter.

We observed that the sense of purpose or duty was the most important factor that influenced the desire to work during the pandemic as seen in other studies also.[13] The PPE provided by the authorities were of very good quality and students were satisfied with it. The bag included PPE kit, Water bottles, snacks, latex rubber gloves, head cap, face shield and after completing the duty they were provided lunch pack at the college premises. The transport facility of car and driver for one team of three students provided by the authorities was efficient. students were satisfied with remuneration provided to them.

R.A.T. program has helped the students in eliminating their own apprehension and fear regarding COVID. Students were also satisfied with COVID training provided to them before participating in the program. This program was very much beneficial for learning clinical skills as a student. The students were not satisfied with the time management of this program because some times when the duty was over or they had completed a specific number of tests they were not allowed to leave the testing center so they were not happy.

This study was conducted at the time when R.A.T. program was just launched amidst the first wave of COVID in India. During that phase people had fear and hesitation towards the screening program as COVID was a taboo. People feared getting stigmatized in community and society if their test results were positive. If a similar type of study has to be conducted in the deadlier second wave of COVID, it would yield different type of results because stigma towards testing for COVID has decreased. More people are coming to kiosks with an intention of getting diagnosed early and prompt initiation of treatment.

Conclusion:

It was for the first time that such active surveillance was taken up and students reacted favorably to it. They perceived improvement in their communication skills. They also felt this program helped them in eliminating apprehension and fear regarding COVID. Most of the students were satisfied working at the community level during this pandemic and this program provided them unique chance to work at grassroots level. Undergraduate students for the first time were given individual responsibility as a health care worker in society. Hence, eliciting their perception and feedback was useful for all stakeholders.

Recommendation:

Involving medical students in the direct community level screening for disease was successful. Hence, it should be encouraged for other public health emergencies in future where medical students go to community for screening and can help in decreasing the burden for hospitals and health care system.

Declaration:

Funding: Nil

Conflict of Interest: Nil

References:

1. Ministry of Health and Family Welfare. GOI.http://www.mohfw.gov.inhttps://www.mohfw.gov.in/pdf/UpdatedClinicalManagementProtocolforCOVID19dated03072020.pdf. Last Accessed on 10th May2021.
2. Indian council of medical research, Ministry of Health and Family Welfare, Government of India, Advisory on Strategy for COVID-19 Testing in India; 2020https://www.icmr.gov.in/Last Accessed on 15 September 2021
3. Francesco C, Elisa B, Maria G, Tiziano A, Gabriella G, Bianca B, Valeria G. Urgent need of rapid tests for SARS CoV-2 antigen detection: Evaluation of the SD-Biosensor antigen test for SARS-CoV-2, Journal of Clinical Virology, Volume 132, 2020, 104654, ISSN 1386-6532.https://doi.org/10.1016/j.jcv.2020.104654.
4. Himanshu Kaushik, Ahmedabad: Fear viral, frequent tests swamp corona scanners, the times of India. https://timesofindia.indiatimes.com/city/ahmedabad/fear-viral-frequent-tests-swamp-corona-scanners/articleshow/79227236.cms. Last accessed on 15 November 2020.

5. Starr I. Influenza in 1918: recollections of the epidemic in Philadelphia. Annals of Internal Medicine. 1976;85(4):516-8.
6. West JB. The physiological challenges of the 1952 Copenhagen poliomyelitis epidemic and a renaissance in clinical respiratory physiology. Journal of Applied Physiology. 2005 Aug;99(2):424-32.
7. Teeman T. 'This is what we signed up for': meet the med school grads fast-tracked to the coronavirus front line. Daily Beast. on 3 April 2020. www.thedailybeast.com/medical-school-graduates-fast-tracked-to-the-coronavirus-front-line-say-this-is-what-we-signed-up-for. Last accessed on 4 April 2020.
8. Goldberg E. Early graduation could send medical students to virus front lines. The New York Times. 2020.https://www.nytimes.com/2020/03/26/health/coronavirus-medical-students-graduation.html. Last accessed September 16, 2021.
9. Whelan A, Prescott J, Young G, Catanese VM, McKinney R. Guidance on Medical Students' Participation in Direct Patient Contact Activities. Association of American Medical Colleges. https://www.aamc.org/system/files/2020-04/meded-April-14-Guidance-on-Medical-Students-Participation-in-Direct-Patient-Contact-Activities.pdf. Published April 14, 2020. Last accessed July 20, 2020.
10. Whelan A, Prescott J, Young G, Catanese VM, McKinney R. Interim guidance on medical students' participation in direct patient contact activities: Principles and guidelines. https://lcme.org/wp-content/uploads/filebase/March-30-2020-Interim-Guidance-on-Medical-Students-Participation-in-Direct-Patient-Contact-Activities.pdf. Updated March 30, 2020. Last accessed July 20, 2020.
11. Ashcroft J, Byrne MH, Brennan PA, Davies RJ. Preparing medical students for a pandemic: a systematic review of student disaster training programmes. Postgraduate medical journal. 2021;97(1148):368-79.
12. Miller, David Gibbes et al. "The Role of Medical Students During the COVID-19 Pandemic." Annals of internal medicine vol. 173,2 (2020): 145-146. doi:10.7326/M20-1281.
13. Tempski P, Arantes-Costa FM, Kobayasi R, Siqueira MA, Torsani MB, Amaro BQ, Nascimento ME, Siqueira SL, Santos IS, Martins MA. Medical students' perceptions and motivations during the COVID-19 pandemic. PloS one. 2021 Mar 17;16(3): e0248627.